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VOLUME XXVII — April 11, 1949 — NUMBER 26

1. Often-Destroyed Belgrade Builds "New City"
2. New Guinea's Port Moresby Due for Growth
3. Helicopter and Archeology Mix in Panama
4. U. S. Onion Goes to Aid of Egypt's Farmers
5. New Island Appears in Frisian Chain

BECAUSE OF EASTER VACATION, THERE WILL BE NO BULLETINS ON APRIL 18. NEXT ISSUE WILL BE APRIL 25.

INTERNATIONAL

A FAIR FLORIDIAN SMILES AT SUNNY EASTER SKIES FROM A FIELD OF LILIES

Although these lilies of the field "toil not, neither do they spin," they actually earn a living for florists from the Pacific coast to the Gulf-washed shores of Florida. Grown by the acre in Florida and other southern states, and in the Pacific northwest and Bermuda, they are shipped at Easter to colder climates. Planted in pots, they appear like a dazzling snowdrift on street stands and in shop windows all over the United States. Their fragrance is a great contrast to the pungent odor of their edible cousin, the onion (Bulletin No. 4).

Bulletin No. 1, April 11, 1949

Often-Destroyed Belgrade Builds "New City"

AMONG the projects reported under way as part of Yugoslavia's five-year plan is the building of a "new city" to be added to Belgrade (Beograd), the capital of the Adriatic country. Amid the bustle of construction, the city of late has been quivering with the charges and countercharges being hurled back and forth between Marshal Tito, Yugoslav premier, and Moscow's cominform (communist information bureau).

Belgrade has risen phoenixlike from the ashes of destruction time and again in its more than 2,000 years of embattled history. Clinging to a steep bluff where the Danube and Sava rivers meet, it occupies a key spot along the road of invasion and conquest between central Europe and the East.

An Ottoman Relic Before World War I

It was this situation that brought periodic destruction to the city. Armies, from Roman to nazi, surged up and down the broad Danube Valley. After the battles, the same geographic factor hastened the rebuilding of a settlement which overlooks the flowing lifeline of trade between mid-Europe and the Black Sea.

One of Belgrade's worst batterings and biggest reconstruction booms came out of World War I. As the prewar capital of Serbia, the city had had less than 100,000 inhabitants. It was made up largely of rambling, plaster-walled, red-topped buildings of Turkish design—relics of Ottoman Empire days.

When the war broke in 1914, Belgrade received its first blows from the Austrian forces across the river frontier. Half the city was demolished in the bitter struggles for its possession.

With the peace settlements, and the establishment of Belgrade as capital of newly formed Yugoslavia, rebuilding began. Some 3,000 new houses went up in the first five years. Apartment houses, office buildings, banks, shops, and movies appeared. Many of the cobblestone streets (illustration, next page) were paved. A modern airport was set up.

City Reflects Little of Country

Between the two world wars, Belgrade's population jumped to more than 300,000. Tall buildings, open parks, and commercial glass fronts gave the city, to the casual traveler, the look of many a west-European center.

Only here and there a crumbling Oriental garden or national costume worn by some visiting Montenegrin mountaineer or Croatian peasant told a fragmentary story of the colorful and varied nature of the Yugoslav countryside. Even these fragments are reported fast disappearing today, as the city rebuilds after its World War II devastation.

According to information leaking through the "iron curtain," Belgrade's new city will be on low ground across the Sava River from the

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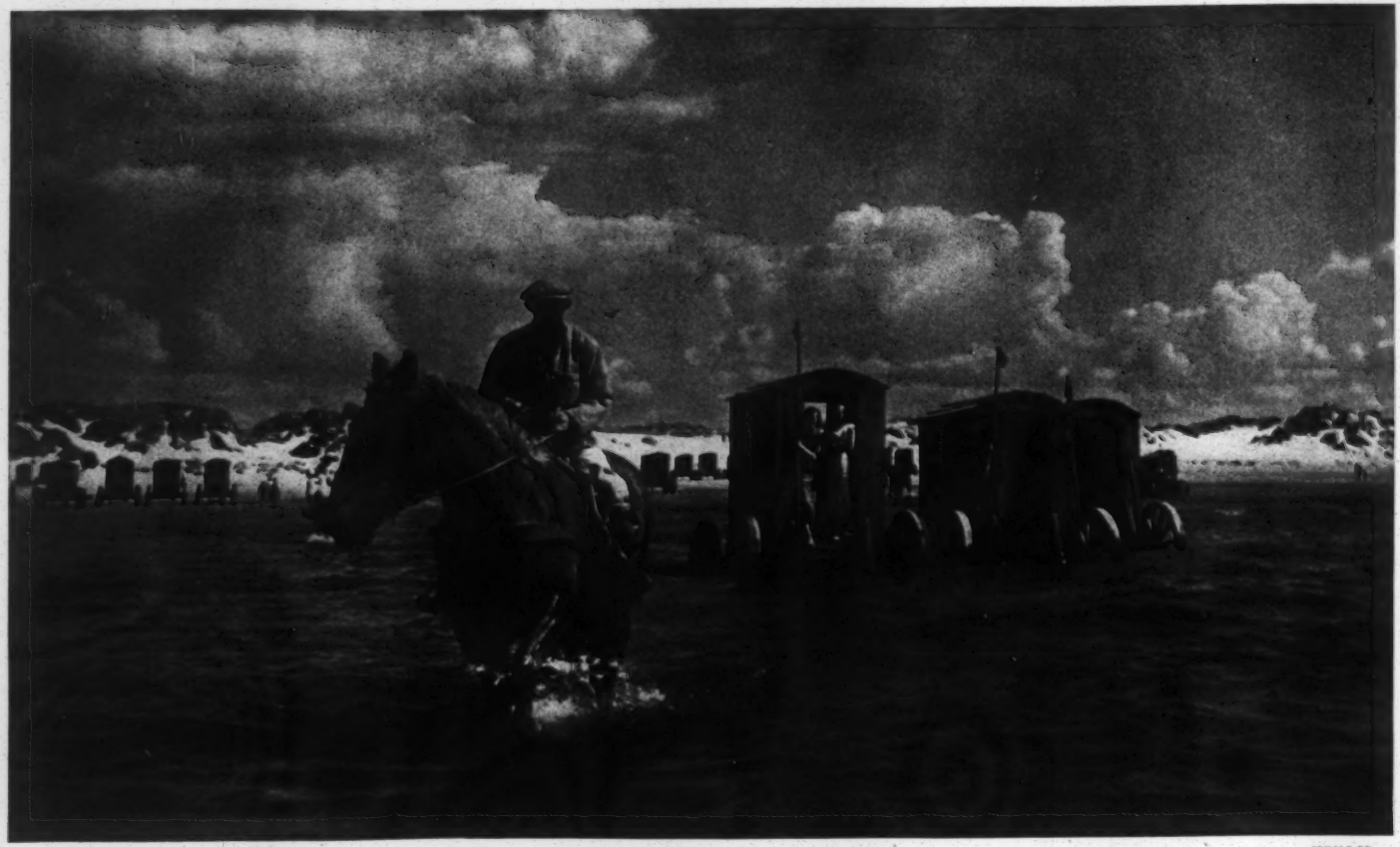

JONALS CO.

ON THE ISLAND OF FANO, HORSES WHEEL THE BATHHOUSES FROM THE BEACH TO DEEP WATER

The little flags above their shelters indicate that these bathers are through swimming. Dobbin will now pull the bathhouses individually back to the beach. The Island of Fano, one of Denmark's principal resorts, is the northernmost of the Frisian Islands (Bulletin No. 5).

Bulletin No. 2, April 11, 1949

New Guinea's Port Moresby Due for Growth

PORT MORESBY, on New Guinea's wild southeastern coast, sees a building boom ahead. Business leaders in the town that made war-news headlines in 1942 predict that it will soon double in size.

To start the new era of growth at Port Moresby, however, a few decisions must be made. They concern Australia's Territory of Papua, the southeast "quarter" of New Guinea, in which Port Moresby lies; and the Territory of New Guinea, composed of the big island's northeast "quarter" plus several neighboring islands.

Needs O.K. by United Nations

German-held for decades until 1914, the latter territory was mandated to Australia by the League of Nations late in 1920, and officially trusteed to Australia by the United Nations early in 1947. For the past three years, an Australian provisional administration has jointly managed both territories. A pending bill before Australia's parliament would make this administration permanent.

First in the line of decisions, a United Nations committee must investigate and report to the General Assembly that Australia's administration of the trusteed territory jointly with a territory of its own is not detrimental.

Second, the General Assembly must agree that the joint administration may be made permanent. Third, the Australian parliament must pass its pending "union" bill. Fourth, Port Moresby must get the call as capital of the joint administration over such other possibilities as Lae, Kokopo, and Rabaul. Then Port Moresby's boom can start!

If Port Moresby doubles, how big will it be? Barely 3,000 residents compose the present port town. Strategic in Australian commerce and defense, its importance exceeds its size.

Lying 1,725 miles north of Sydney and 320 miles northeast of Australia's Cape York tip, Port Moresby has a sheltered deep-water harbor and an airport to link New Guinea coconut and rubber plantations and north-coast goldfields with Australia's cities.

Oil Desperately Sought

The low buildings of the town nestle on the sloping side of a small peninsula that forms one bank of the harbor. Native villages of thatched huts rise from the harbor water on stilts (illustration, next page). Plantations are hewn from the jungle near by.

Waterfront warehouses containing copra were the scene of Port Moresby's worst fire last November. Australians, desperate for a petroleum source, are at present working several drilling rigs on New Guinea within 100 miles of "the port." Copper leads a list of minerals that have been found in the hills near by.

Shore roads from the village quickly fade into trails. A tortuous path over the wild Owen Stanley Range 80 miles or so to inland Kokoda grew into a wartime supply route as the Japanese were forced backward.

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historic city. Large areas will be raised about ten feet to be above flood level. About 250,000 people will be accommodated in the new portion, which spreads over 25 square miles. Belgrade's population today is 405,000.

Yugoslav planners hopefully look forward to a city of 1,000,000. This estimate no doubt includes new and old Belgrade, plus the large suburb of Zemun and the smaller one of Benzanija—all on the south side of the Danube. Expected to be finished by 1951 are the communist party headquarters, the presidium, the federal ministries, and some factories. The entire project, reports say, will take fifteen years.

NOTE: Belgrade may be located on the National Geographic Society's map of Europe and the Near East. Write the Society's headquarters, Washington 6, D. C., for a price list of maps.

For additional information, see "The Clock Turns Back in Yugoslavia," in the *National Geographic Magazine* for April, 1944; "Echoes from Yugoslavia" (16 photographs), June, 1941; "Kaleidoscopic Land of Europe's Youngest King," June, 1939*; "Yugoslavia—Ten Years After," September, 1930; and "Dalmatian Days," January, 1928. *(Issues marked with an asterisk are included on a special list of Magazines available to teachers in packets of ten for $1.00.)*

See also, in the GEOGRAPHIC SCHOOL BULLETINS, October 7, 1946, "Racial Unity Is Tie That Binds Yugoslavia."

MAYNARD OWEN WILLIAMS

VENDORS DISPLAY SHINY FRUIT ON A COBBLESTONE STREET IN THE OLD PART OF BELGRADE

The following order form may be used (or copied) for requesting the BULLETINS:
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Bulletin No. 3, April 11, 1949

Helicopters and Archeology Mix in Panama

THE modern archeologist is learning to fly in the air to dig in the ground. In his ceaseless search for clues to ancient relics, he has brought the helicopter into use.

The "motorcycle of the air" has just been tried out successfully over the jungles of Panama, where an expedition sponsored by the National Geographic Society and the Smithsonian Institution is digging into the secrets of remote civilizations.

'Copters Work in Pairs

"In half a day we accomplished what would have taken us up to two weeks by canoe and on foot," Dr. Matthew W. Stirling, the expedition leader, reported to the Society's headquarters recently. "The maneuverability of these machines is almost incredible. Their use for archeological exploration often has been suggested, but to my knowledge this is the first time it actually has been done."

The site to be investigated was a group of mounds believed to exist in the Tigre River region of the jungle east of the Panama Canal Zone. Two helicopters were made available for the search by the Caribbean Air Command of the United States Air Force. A pair of these versatile "air buggies," it was explained, usually work together on such missions, to provide a spare in case one should be forced down.

There were no mishaps. The party located the site and landed in a small jungle clearing. The mounds turned out to be peculiar natural formations which had been utilized by the Indians, said Dr. Stirling, because of their elevation above the surrounding low ground.

Later the expedition returned to the same region and set up camp for 11 days. In the two excavations of five sites encountered within a short range of the camp, evidence of an entirely new culture was discovered. Particularly interesting was the long-buried pottery with its geometric designs and forms of frogs, turtles, snakes, monkeys, and birds.

Major Work near El Volcán

A dangerous find in the vicinity also added to the knowledge of science—although not archeological. A small yellow-fever epidemic in the neighborhood had brought to the camp several Panama City specialists in tropical diseases. One of the doctors captured a haemagogus, a yellow-fever mosquito, the first one he had ever found in the field.

The National Geographic-Smithsonian expedition, after completing its work east of the Canal Zone, went on into the major region to be excavated, near El Volcán, next to the Costa Rica boundary in western Panama. There other burial mounds were hunted and marked for later digging, and surface collections were made in the continuing search for links between ancient cultures.

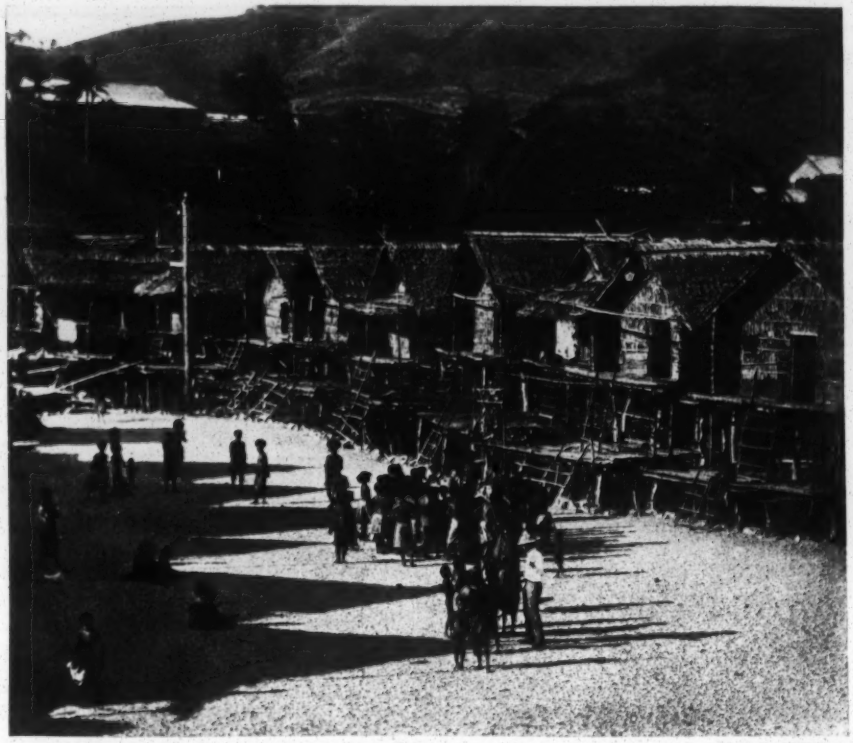
Dr. Stirling, Chief of the Bureau of American Ethnology of the Smithsonian, has led nine other expeditions into the Middle-America area. He is accompanied by his archeologist wife, Mrs. Marion Stirling, and

Their three drives on Port Moresby, thwarted uncomfortably close to the village, marked a limit of their southward push toward Australia.

Australia's Territory of Papua, covering 90,000 square miles and holding 300,000 natives and about 2,000 Europeans, is administered from Port Moresby. The trusteed Territory of New Guinea includes 70,000 square miles of mainland known as North-East New Guinea, plus 23,000 square miles of islands of the Bismarck Archipelago and northwest Solomons. It counts an estimated 900,000 natives and 7,000 Europeans.

NOTE: Port Moresby is shown on the Society's map of Australia; it and other regions of New Guinea may be found on the map of Southeast Asia and Pacific Islands.

For further information, see "New Guinea's Mountain and Swampland Dwellers," in the *National Geographic Magazine* for December, 1945; "Yank Meets Native," July, 1945*; "Treasure Islands of Australasia," June, 1942*; "Unknown New Guinea," March, 1941; and "Into Primeval Papua by Seaplane," September, 1929.



DR. E. W. BRANDES

IN THE "LAND STREET" OF ELEVALA, NATIVE SUBURB OF PORT MORESBY, PAPUANS CONGREGATE

The other street of this island town—at the other end of these nipa shacks—is the sea. The houses are actually built over water, on stilts. To each, on the water side, is tied a dugout canoe. Elevala is only a few yards from the mainland, but that distance was enough to discourage head hunters from the interior. Nowadays, because of custom and the encouragement of sanitation officers, coastal Papuans continue to build over the water.

TEACHERS! Do you leaf aimlessly through your *National Geographic Magazines*, looking for that article on Greece, those color pictures of Guatemalan costumes? Save time. Order the new Cumulative Index, 1899-1947 inclusive. $2.50.

U. S. Onion Goes to Aid of Egypt's Farmers

UNCLE SAM, whose modern agricultural methods have put the United States at the top of the list of onion producers, is responding to a request for suggestions from a country which raised onions centuries before America was discovered. An expert from the U. S. Department of Agriculture has left for Egypt with samples of the new crossbred, fast-growing "California Hybrid No. 1."

Taking onions to Egypt may seem superfluous. This pungent vegetable has been grown along the Nile for thousands of years. Carvings on ancient monuments in the land of the Pharaohs prove that the Egyptians raised onions before their written history began.

An Offering to the Gods

In spite of this head start, the Egyptian government believes that the United States can give it pointers on onion culture. From the American scientist, it seeks information on methods that will help produce bigger and better versions of the ancient Egyptian model.

That onions were important to the early Egyptians in various ways is indicated in many inscriptions, paintings, and sculptures. Arranged in bouquet form, the bulbous vegetable was often placed on the altars of their gods as a sacred offering, along with other delicacies.

Onions were a popular food, cooked or raw, with the Egyptians. They were served in both private homes and the early-Egyptian equivalent of public restaurants. The Bible tells of the homesick Children of Israel wandering in the wilderness and wistfully recalling "the fish . . . the cucumbers, and the melons, and the leeks, and the onions."

Onions are still an outstanding crop in Egypt. The land of the Nile is one of the world's leading producers of this useful vegetable. Although Egypt's onion output is considerably below that of the United States, the African kingdom's crop ranks higher as a money-producing export because most of the onions grown in the United States are consumed there.

May Be a Native of Egypt

Before World War II, Egypt annually produced nearly 725,000 tons of onions. In 1947 this figure sagged to about 206,000 tons. In the same year the United States raised about 812,000 tons.

It is believed that the onion originated in western Asia or in Egypt. It has been grown in those regions from time immemorial. It is now raised in widely scattered areas over the world. It grows best in moderate climates where moisture is plentiful but where dry weather prevails at the time of ripening. The soil must be loose, fertile, and well drained.

The onion is so hardy that it can be planted as soon as the ground can be worked in the spring. In localities where the temperature does not sink to the freezing point, onions may be planted during the winter.

In the United States, onions are grown from Massachusetts to Texas,

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Richard H. Stewart, seasoned expedition representative of the National Geographic Society.

NOTE: Panama is shown on the Society's map of the Countries of the Caribbean.

For additional information, see "Exploring the Past in Panama," in the *National Geographic Magazine*, March, 1949; and "Panama, Bridge of the World," Nov., 1941*:

RICHARD H. STEWART

"IT'S A DEAL," SAY THESE SMILES AS TWO BARN OWLS CHANGE HANDS

This schoolboy of Parita, Panama, earned unexpected pennies while the National Geographic-Smithsonian expedition was in his town. He caught birds for the ornithologist Dr. Alexander Wetmore, vice-chairman of the Research Committee of the National Geographic Society.

The World's Ten Highest Waterfalls

Just as the National Geographic Society's foreign place names have been accepted as standard by government bureaus and news agencies, so the Society has on occasion furnished other information designed to end confusion and provide uniform figures. The following table of the world's ten highest waterfalls is one such set of figures:

1. Angel (Venezuela)	3,300-5,000 (est.)	6. King George VI (British Guiana)	1,600
2. *Tugela (Natal, South Africa)	2,810	7. Upper Yosemite (California)	1,430
3. Kukenaan (Venezuela)	2,000	8. Gavarnie (France)	1,385
4. *Sutherland (New Zealand)	1,904	9. *Takkakaw (British Columbia)	1,200
5. Ribbon (California)	1,612	10. Wollomombie (Australia)	1,100

* Total height represents more than one leap.

Ranking by height alone often leaves out the thundering majesty of waterfalls with tremendous volume and great width of crest. On the basis of volume combined with height and width, the world's greatest cataract is Guaira (Sete Quedas), on the Paraná River between Paraguay and Brazil. Its estimated mean annual flow is 470,000 cusecs (cubic feet per second). Next in order in volume are: 2. Khon (Mekong, French Indochina); 3. Niagara; 4. Paulo Affonso (Saõ Francisco, Brazil); 5. Urubupunga (Paraná, Brazil); 6. Iguassú (Argentina-Brazil); 7. Patos-Maribondo (Rio Grande, Brazil); 8. Victoria (Zambezi, southern Africa); 9. Grand (Hamilton, Labrador); and 10. Kaieteur (British Guiana).

Niagara ranks first in the world for steadiness of flow, almost constantly falling at a rate of 212,000 cusecs. Its height ranges from 158 to 175 feet, while Guaira falls 130 feet. Many falls fluctuate in volume with the seasons. Some stop completely during the dry months.

New Island Appears in Frisian Chain

TO THE low and sandy Frisian Islands, stretching along Europe's northern coast, the sea gives and the sea takes away. Recently the sea has given by raising a mere sand bar off Germany to definite island status.

The popped-up land, about eight and a half acres in size, reportedly will be used as a scientific station for bird study. It lies in the East Frisian Islands, a group composed entirely of German territory. The West Frisian Islands belong to the Netherlands, while the North Frisian string (illustration, next page) is divided between Germany and Denmark.

Were Once Part of Mainland

The new island represents a reversal of nature's usual way in this part of the world. For ages the winds and waves of the North Sea have steadily cut down the islands. Frisian folklore is full of horror stories of sinking land and drowning villages. In the slow but losing battle against the sea, islands have become remnants, remnants have disappeared. Borkum, for example, once an island of 380 square miles, has shrunk to two fragments, one twelve and the other two square miles in area.

The islands are remnants of what was once the north European shoreline. Shallows, known as *wadden*, separate them from the present mainland. Sometimes the destroying action of the stormy North Sea on the islands' outer shores is balanced by the building up of sandy flats on the inner shores. Resorts have developed on these beaches (illustration, inside cover).

Countless migrant birds, including hooded crows, bluethroats, and petrels, fly over the Frisian Islands. Four hundred different species were identified in the prewar observation station at Germany's Helgoland, between the East and North Frisian groups. In the West Frisians, part of Texel is called Eireland, or "egg island," because so many sea birds' eggs are deposited there.

Of the 25 or so sandy spots of land big enough to be named on large-scale maps, about 16 are German. During World War II the Germans took over the entire chain, making it into an offshore screen against Allied air strikes at continental targets.

U-boats Sheltered

The important sea and air bases at Helgoland and Sylt, the latter off the border of Germany and Denmark, were outstanding bomber targets. Yet despite the heavy punishment which left flat-topped 200-foot-high Helgoland looking, at the war's end, like "stale cake crumbling under a knife," the island's concrete-sheltered U-boat and torpedo-boat pens remained undamaged.

It was not until after the war that the pens and all other Helgoland fortifications were demolished. Since the completion of the big demolition job in April, 1947, the island has been used by British and sometimes American bomber missions as a testing ground for heavy and deep-

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from New York (illustration, below) to California. There are numerous varieties. The American type keeps better after being harvested, but is generally considered inferior in flavor to the Bermuda onion and the large white Spanish variety. The red American onion is usually the most pungent, the yellow next in strength, and the white the mildest.

A member of the lily family, the redolent onion is a cousin of the fragrant Easter lily (illustration, cover), as well as of leeks, chives, shallots, garlic, and ramsons, a species of garlic.

Through the ages, superstitions have been linked with onions. The early Greeks believed that eating them would insure courage in battle. Various healing qualities have been attributed to them. Although most of the old medicinal uses fall in the class of the old wives' tale, modern doctors have reported surprisingly favorable results from experiments with onion paste or juice in the treatment of burns and wounds.

NOTE: For additional information, see "Black Acres" and "Empire State Onions and Pageantry" (12 color photographs), in the *National Geographic Magazine* for November, 1941*.

J. BAYLOR ROBERTS

FROM DRYING RACK TO MARKET SACK, A NEW YORK ONION CROP MOVES RAPIDLY BY MACHINE

On this farm in Orange County, New York, onions pass from the drying racks (left) through a power machine which removes loose skin and the rich black soil still clinging. It grades them by size and drops them into the net sacks in which they go to market. In onion acreage, New York ranks next to Texas, the largest onion-growing state in the union.

penetration bombs. The former Helgoland inhabitants, mostly fisherfolk, were resettled on Sylt Island.

Normally, most of the Frisians make their living by fishing, piloting, and various activities connected with the resort traffic of the north coast. The people of these islands, plus some of the near-by mainlanders, are a group apart from most Europeans. The Frisians follow ancient customs and have a language all their own which is related to English. In fact, the Angles, who gave their name to England (Angle-land), came from this coastal area.

NOTE: The Frisian Islands are shown on the Society's map of Germany and Its Approaches.

For further information, see "2,000 Miles Through Europe's Oldest Kingdom," in the *National Geographic Magazine* for February, 1949; "Demolishing Germany's North Sea Ramparts," November, 1946*; and "On Danish By-Lanes," January, 1940.

See also, in the Geographic School Bulletins, March 31, 1947, "Dynamite Alters Helgoland Geography."

WILLIS LINDQUIST

THE GRANDMOTHERLY "DUST CAP" KEEPS BLOWING SAND FROM THIS FRISIAN GIRL'S HAIR

A prewar traveler, going from the Denmark mainland to the North Frisian Islands, commented that the islanders "are taller, rawboned, with sober faces and a cold way of looking at you." If that is true, then this charming miss must be from the mainland.